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Purpose or Objective: The radiation therapy of head and neck tumors is burdened by high toxicity to organs at risk (OARs) with consequent administered dose limitations to the target and compromised clinical outcome. We investigated the contribution of functional/biological imaging obtained by Positron Emission Tomography (PET/CT) in Gross Tumor Volume (GTV) and Clinical Target Volume (CTV) definition of primary tumor and regional lymph nodes in head and neck cancer, for a more accurate target delimitation resulting in lower toxicity to OARs.

Material and Methods: From March 2103 to June 2014 we examined 51 patients with head and neck cancer and defined clinical volumes with the aid of only morphological CT images and with the aid of diagnostic PET/CT images. Then we evaluated, through tests of statistical significance, the overlap of GTV and CTV obtained with each of the two methods respectively. Moreover usefulness of PET/CT in preventing geographic errors for a more accurate target definition, resulting in peritumoral tissues preservation and less toxicity to the OARs, was evaluated as well. The influence of two different imaging techniques in TNM staging, which is important for treatment planning, was investigated.

Results: In 33 of 51 patients the TNM staging obtained by PET/CT was similar to that performed by CT images, but in 39% of the cases the primary tumor GTV defined by PET/CT was significantly smaller and restricted compared to that defined by CT only ($p < 0.016$). Due to the better GTV definition in terms of size and location, the OARs are potentially better preserved. In 12 patients the more accurate definition of tumor margins made possible by PET/CT produced a different T than that obtained with CT evaluation only; in 6 patients PET/CT identified metastases to regional lymph nodes not assessed with CT images only. It was not observed significant variation of the nodal volumes.

Conclusion: The use of PET/CT imaging allows the realization of more precise target volume and better defined clinical volumes, with a possible better preservation of the OARs and lower toxicity. Functional imaging PET/CT helps the radiation oncologist not only in the process of treatment planning, but has the advantage of identify treatable disease not highlighted on morphological CT images. It is therefore recommended to use a PET/CT scan in the radiotherapy planning process in order to achieve a more appropriate treatment planning in head and neck tumors.

EP-1084

Elderly patients concomitant radiotherapy + cetuximab in locally advanced head and neck cancer

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Purpose or Objective: Concomitant radiotherapy + cetuximab association has shown superiority to exclusive radiotherapy for locally advanced head and neck cancers (LAHNC). Data on this association are scarce for the elderly despite its rising incidence. Initial clinical trials that led to its approval have not included patients>70 years. The objective of this study was to assess efficacy and toxicity of concomitant radiotherapy and cetuximab for patients aged>70 years with LAHNC

Material and Methods: A retrospective monocentric data collection was performed in the Antoine Lacassagne center, France. Inclusion criterias were: age>70 years at time of diagnosis, histologically proven LAHNC, treated with radiotherapy combined with cetuximab. Non-inclusion criterias were: previous radiotherapy and metastases at time of diagnosis

Results: Thirty-five patients were included between 2008 and 2012. Median follow up was 22 months. Median age was 74 years (70-86). Median performance status was 1(0-2). Female/male sex ratio was 0.34. Tumor sites were: Oropharynx(57.1%), larynx(20%), hypopharynx(14.3%), oral cavity(2.9%), rhinopharynx(2.9%), lymph node with unknown primary(2.9%). Using TNM classification, tumors were: T1(5.9%), T2(35.3%), T3(35.3%), T4(22.9%), N0(28.6%), N1(8.6%), N2(48.6%), N3(14.3%). Median radiotherapy dose was 70 Gy(60-70). 40% of patients were treated with intensity-modulated radiotherapy, the rest were treated with conventional 3D radiotherapy. 94.3% of patients paused radiotherapy due to toxicity. 29% had a cetuximab dose-reduction and 1 patient had a definitive interruption. Median survivals were respectively: 49 months for overall survival(Standard-Error (SE)=8) and 32 months for relapse free survival(SE=10). Two-year local-regional relapse and metastatic relapse free survivals were respectively 59%(SE=10) and 74%(SE=10). Median body mass index (BMI) was 24.6(17.3–38) before treatment and 23, 24 after treatment(16.3–34.7). Median weight variation was 4 kilograms(-16 to +6). Ninety-four percent of patients had nutritional support: 37.8% had oral nutritional supplements only, 56.8% had enteral nutrition and 2.7% parenteral nutrition. Skin reaction and mucositis were the major toxicities recorded. Toxicities details are reported in table 1

Type	Total incidence (%)	G1 (%)	G2 (%)	G3 (%)	G4 (%)
Skin toxicities	80	8.6	8.6	62.9	0
Mucositis	74.3	5.7	37.1	31.4	0
Xerostomia	20	0	2.9	17.1	0
Dysgeusia	11.4	0	5.7	5.7	0
Anorexia	8.6	0	0	8.6	0
Constipation	8.6	2.9	5.7	0	0
Esophagitis	8.6	2.9	2.9	2.9	0
Pain	5.7	5.7	0	0	0
Dysphagia	5.7	0	0	5.7	0
Nausea	2.9	2.9	0	0	0

Table 1

Conclusion: Concomitant radiotherapy and cetuximab seems to be an effective therapy in the elderly population with encouraging results similar to the literature concerning its efficacy and toxicity. This treatment should be considered for patients > 70 years.

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EGFR expression in head and neck cancer : does it have a role as prognostic factor in radiotherapy?

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Purpose or Objective: In an era of personalized treatment there is a great interest in identifying factors which might help to predict patient response to RT. EGFR role in this